

REMARKS

Claims 1 to 7, 19 to 25 and 28 to 33 were previously pending in this application. Claims 1, 19 and 28 are being amended herein. Claims 34 is being added herein. A check in the amount of \$110.00 is submitted herewith to cover the cost of the one-month extension of time. Please charge Deposit Account No. 02-1818 for any insufficiency of payment or to credit any overpayment.

In the Office Action of May 22, 2002, Claims 1 to 3, 5, 6, 19 to 21, 25, 28, 32 and 33 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 2,740,014 to Hagglund et al. ("*Hagglund*"). Claims 4, 7, 22 and 23 were rejected under 35 U.S.C. § 103(a) as being obvious in view of *Hagglund*. Claim 24 was rejected under 35 U.S.C. § 103(a) as being obvious in view of *Hagglund* and U.S. Patent No. 5,027,101 to Morrill, Jr. ("*Morrill, Jr.*"). Claims 29 and 30 were rejected under 35 U.S.C. § 103(a) as being obvious in view of *Hagglund* and U.S. Patent No. 4,918,420 to Sexton ("*Sexton*"). Claim 31 was rejected under 35 U.S.C. § 103(a) as being obvious in view of *Morrill, Jr.* and *Hagglund*.

The claims as amended are distinguished over *Hagglund* and the other art of record. In particular, Claim 1 as amended is directed to a fuse arrangement for a vehicle. The arrangement includes a wiring terminal having a plurality of discrete circuits extending therefrom. A common bus assembly is provided. A plurality of rows of axial fuses are used in the vehicle and are disposed between the plurality of circuits in the wiring terminal and the common bus assembly. The common bus assembly is so configured and arranged to contact the fuses in the rows to thereby connect electrically to the plurality of discrete circuits.

Hagglund does not disclose such an arrangement. First, *Hagglund* makes no reference to the use of its disconnect device with automobiles. Indeed, the disconnect does not appear to be suitable as an automotive fuse box. For one reason, *Hagglund* provides for only three fuses, which is typically less than the number of fuses in automotive fuse boxes. Also, the contact forks 20 and contact tongues 12 and 13 appear to be thicker than automotive fuse terminals and leads and sized for a heavier duty than the amperages typically associated with automotive fuses. In short, the *Hagglund* disconnect appears to be a wall mounted electrical disconnect, the type that could handle the incoming voltage to a residence or commercial dwelling.

Second, *Hagglund* discloses a single row of fuses. Claim 1 as amended includes a plurality of rows of fuses. At page 6 and elsewhere in the present application, Figures 3 to 5 are

specified as section drawings, showing one of a plurality of rows of fuses. A single row of fuses is shown for convenience and to clearly illustrate the present invention. It would not be obvious for one skilled in the art to combine the disconnect of *Hagglund* with a plurality of rows of fuses shown, for example, in Fig. 1 of the present application. Indeed, the so-called "common bus" 18, 20 and 26 illustrated best in Fig. 3 of *Hagglund* can only extend to the single row of cartridge fuses 11. Modifying the hinged "common bus" of *Hagglund* to accommodate multiple rows of cartridge fuses 11 would be a major undertaking, is impractical, and moreover is not necessary for the purpose that the *Hagglund* disconnect serves, namely, to provide a quick-type power disconnect.

Applicants respectfully traverse Examiner's statement, used in combination with *Hagglund*, that female type fuses are a mere design choice. Employing female type fuses in *Hagglund* would require a reconfiguration of many of the components therein, such as the brackets 7, arms 8, forks 5 and 20, not to mention the cartridge fuses 11. It is therefore respectfully submitted that Claim 4 recites a further patentable feature over *Hagglund*.

Applicants respectfully traverse Examiner's statement, used in combination with *Hagglund*, that heat conductive housings are well known in the art of fuse boxes and fuse arrangements. Electrically insulative housings are well known. *Hagglund*, for instance, states (col. 2, line 46), "For sake of convenience, it is preferred that the protective case 22 be made of a transparent dielectric material so that the operation of the fuses may be observed without removal of the cover or casing." *Hagglund* makes no mention of a desire to increase heat dissipation. Also, Examiner offers no proof that a dielectric, clear and thermally conductive material existed at the time of the present invention. It is respectfully submitted therefore that Claim 7 recites a further patentable feature over *Hagglund*.

For at least the above reasons, Claim 1 as amended and Claims 2 to 7 that depend therefrom are each novel, not obvious and patentably distinguished over the art of record. Claim 1 as amended renders moot the obviousness rejection of Claims 4 and 7 in view of *Hagglund*.

Claim 19 as amended is directed to a fuse box arrangement for a vehicle. The arrangement includes a fuse box having a base and a cover. A common bus terminal is placed within the fuse box, wherein the common bus terminal is connected to a voltage supply. A plurality of wire terminals are provided within the fuse box, each of the plurality of wire terminals are connected to a discrete circuit. A fuse array is included having a plurality of fuses

that are used in the vehicle and are arranged between the base and the cover of the fuse box. The fuses electrically connect the common bus terminal with the discrete circuits. The common bus terminal is completely translationally removeable from and translationally reinsertable onto the plurality of fuses.

The case 22 of *Hagglund* swings upwardly (col. 3, line 1) to break electrically contact. That is, *Hagglund* is hinged. Claim 19 on the other hand specifies that the common bus terminal is completely translationally removeable from and translationally reinsertable onto the plurality of fuses. The case 22 of *Hagglund* is not completely translationally removeable from and translationally reinsertable onto the plurality of cartridges 11. Moreover, for reasons described above, a hinged apparatus is not practical for multiple rows of fuses. Further, certain types of automotive fuses, such as radial and blade fuses, would not feasibly hingedly connect and disconnect to a common bus. Accordingly, one skilled in the art would not look to *Hagglund* for motivation to build the invention as claimed in Claim 19.

Applicants respectfully traverse Examiner's assertion that changing the location of the common bus terminal to the base and the wire terminals to the cover in Claims 22 and 23 respectively is a mere design choice. The so-called "common bus" 18, 20 and 26 of *Hagglund* clearly pivots with and couples to the case 22. The "wiring terminal" 6 of *Hagglund* clearly couples to the base plate 1. Coupling the "common bus" components 18, 20 and 26 instead to the base and the "wiring terminal" 6 instead to the case 22 would create numerous problems, does not appear to be a desirable change, and would not be obvious (or prudent) to one of skill in the art.

Such a change, for example, would necessitate that the cartridge fuses 11 would have to snap to and move with the dielectric case 22. It would be difficult and dangerous to insert and remove the cartridge fuses behind and underneath the hinged, plastic case 22. This is so especially considering the wires connected to terminals 6 would also have to swing and move with the pivotally opening case 22. The weight of the wires (and associated conduit) would tend to pull the case towards the closed position, necessitating some sort of locking mechanism not disclosed in *Hagglund*. These changes are not simple undertakings and moreover produce undesirable consequences. It is respectfully submitted therefore that Claims 22 and 23 recite further patentable features over *Hagglund*.

Applicants respectfully traverse Examiner's rejection of Claim 24, combining *Morrill, Jr.* and *Hagglund*. The box shaped cartridge fuses 11 of *Hagglund* are not capable of being provided as a planar, electrically insulating substrate having a metallization pattern disposed on at least one side of the substrate, wherein a protective coating is provided over a portion of the pattern, another portion of the pattern being a contact portion. Moreover, the fuse arrangement of claim 24 would not work with the disconnect of *Hagglund* do at least to the partitions 25 of *Hagglund*, which would preclude the use of a planar, electrically insulating substrate. There is therefore no motivation to combine *Morrill, Jr.* and *Hagglund*. It is therefore respectfully submitted that Claim 24 recites further patentable features over the art of record.

For at least the above reasons, Claim 19 as amended and Claims 20 to 25 and 34 that depend therefrom are each novel, not obvious and patentably distinguished over the art of record. Claim 19 as amended renders moot the obviousness rejections of Claims 22 and 23 in view of *Hagglund* and Claim 24 in view of *Morrill, Jr.* and *Hagglund*.

Claim 28 as amended is directed to a fuse box for a vehicle. The fuse box includes a base and a cover that is completely removeable with respect to the base. A common bus terminal attaches to and is completely removeable with one of the base and the cover from the other of the base and cover. A plurality of fuses are used in the vehicle, housed in the base and cover, and coupled electrically to the common bus terminal.

As stated above, *Hagglund* teaches a case 22 that swings upwardly so that contact forks 20 break contact from the contact tongues 13 of cartridge fuses 11. That is, *Hagglund* moves pivotally. Claim 28 on the other hand includes a base and a cover that is completely removeable with respect to the base. The case 22 of *Hagglund* is not completely removeable from and reinsertable onto the base plate 1 of *Hagglund*.

Applicants respectfully traverse Examiner's rejection of Claims 29 and 30, combining *Hagglund* and *Sexton*. The box shaped cartridge fuses 11 of *Hagglund* do not appear to be capable of being stored on a roll. There is no motivation therefore to combine *Hagglund* and *Sexton*. Because the cartridge fuses 11 of *Hagglund* cannot be stored on a roll (Claim 30), *Hagglund* and *Sexton* do not teach a roll having a fuse carrier strip with indexing holes associated with the fuses (Claim 31). Furthermore, official notice should not be taken where there is no reference showing indexing apertures individually associated with the fuses on the

strip. It is therefore respectfully submitted that Claims 29 and 30 recite further patentable features over the art of record.

For the same reasons discussed above in connection with Claim 24, Applicants respectfully traverse Examiner's rejection of Claim 31, combining *Morrill, Jr.* and *Hagglund*. It is therefore respectfully submitted that Claim 31 recites a further patentable feature over the art of record.

For at least the above reasons, Claim 28 as amended and Claims 29 to 33 that depend therefrom are each novel, not obvious and patentably distinguished over the art of record. Claim 28 as amended renders moot the obviousness rejections of Claims 29 and 30 in view of *Hagglund* and *Sexton* and Claim 31 in view of *Morrill, Jr.* and *Hagglund*.

An earnest endeavor has been made to place this application in condition for formal allowance and such allowance is courteously solicited. If the Examiner has any questions regarding the above Response, Applicants respectfully request that the Examiner contact the attorney designated below to discuss the Response.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Versions with Markings to Show Changes Made.**"

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Claim 1 has been amended as follows:

1. (Amended) A fuse arrangement for a vehicle comprising:
a wiring terminal having a plurality of discrete circuits extending therefrom;
a common bus assembly; and
~~at least one~~ a plurality of rows of axial fuse fuses used in the vehicle and disposed
between ~~at least one of~~ the plurality of circuits in the wiring terminal and the common bus
assembly ~~for electrically connecting the common bus assembly to at least one of~~ the common
bus assembly so configured and arranged to contact the fuses in the rows to thereby connect
electrically to the plurality of discrete circuits through the at least one axial fuse.

Claim 19 has been amended as follows:

19. (Amended) A fuse box arrangement for a vehicle comprising:
a fuse box having a base and a cover;
a common bus terminal within the fuse box, the common bus terminal connected to a
voltage supply;
a plurality of wire terminals within the fuse box, each of the plurality of wire terminals
connected to a discrete circuit; and
a fuse array having ~~at least one~~ a plurality of axial fuse fuses used in the vehicle and
arranged between the base and the cover of the fuse box, the ~~axial fuse fuses~~ electrically
connecting the common bus terminal with the discrete ~~circuit~~ circuits, wherein the common bus
terminal is completely translationally removed from and translationally reinserted onto the
plurality of fuses.

Claim 28 has been amended as follows:

28. (Amended) A fuse box for a vehicle comprising:
a base and a cover that ~~opens~~ is completely removed with respect to the base;
a common bus terminal that attaches to and is completely removed with one of the base
and the cover from the other of the base and cover; and
a plurality of fuses used in the vehicle and housed between the base and cover that
electrically couple to the common bus terminal.

Claim 33 has been amended as follows:

33. (Amended) The fuse box of Claim 28, wherein the fuses used in the vehicle are ~~axial~~
~~fuses~~ of a type selected from the group consisting of: axial, radial and blade fuses.

Claim 34 has been added.